

CLAIMS

1. A method of producing a series of electrical resistance spot welds in one or more workpieces, each workpiece being positioned for each weld between a servomotor driven movable electrode and an axially opposing fixed electrode, the method comprising:

setting target values for electrode displacement and electrode force, and an initial total welding current and its duration;

making a pre-determined number of spot welds using a weld controller to apply the welding current between the electrodes and to control the servomotor in applying the electrode force and advancing the movable electrode to make a spot weld indentation in the workpiece with an electrode displacement;

measuring the electrode force and electrode displacement after a spot weld;

comparing the measured electrode force and electrode displacement values with the corresponding target values; and, if either of the force or displacement values are not within a tolerance range of the target values

altering said welding current during one or more succeeding spot welds to bring the electrode displacement and/or force values for the succeeding spot welds within said tolerance ranges.

2. The method as recited in claim 1 comprising increasing the welding current if said electrode displacement is less than the electrode displacement target value or the electrode force is greater than the electrode force target value.

3. The method as recited in claim 1 comprising reducing the welding current if said electrode displacement is greater than the electrode

displacement target value or the electrode force is less than the electrode force target value.

4. The method as recited in claim 1 comprising comparing the measured electrode force and displacement values with the corresponding target values; and, if both of the force and displacement values are within a tolerance range of the target values

continuing to weld said workpieces using said initial weld current and said electrode displacement and electrode force target values, and thereafter

continuing to measure said electrode displacement values and electrode force values for comparison with the target values.

5. The method as recited in claim 1 comprising
altering said welding current during one or more succeeding spot welds to bring the electrode displacement and/or force values for the succeeding spot welds within said tolerance ranges, and thereafter

using the altered total welding current for subsequent spot welds.

6. The method as recited in claim 2 comprising
altering said welding current during one or more succeeding spot welds to bring the electrode displacement and/or force values for the succeeding spot welds within said tolerance ranges, and thereafter
using the altered total welding current for subsequent spot welds.

7. The method as recited in claim 3 comprising
altering said welding current during one or more succeeding spot welds to bring the electrode displacement and/or force values for the succeeding spot welds within said tolerance ranges, and thereafter
using the altered total welding current for subsequent spot welds.